

S.D.E.
B.B.A. SEM-I (CBCS - 2018 COURSE) : WINTER - 2018
SUBJECT : FOUNDATION OF MATHEMATICS & STATISTICS

Day : Monday **W-2018-4438** Time : 02.00 PM TO 05.00 PM
 Date : 03/12/2018 Max. Marks : 70

N.B.:

- 1) Attempt **ANY FOUR** questions from Section – I and attempt **ANY TWO** questions from Section – II.
- 2) Answers to both the sections should be written in **SEPARATE** answer books.
- 3) Figures to the right indicate **FULL** marks.

SECTION – I

- Q.1** Define ‘Statistics’ with the help of definition and scope of statistics. [10]
- Q.2** a) A certain sum of money invested on compound interest amounts to ₹ 2,420 in 2 years and ₹ 2,662 in 3 years. Find the rate of interest and sum invested? [05]
- b) Find A^3 . If $A = \begin{bmatrix} -2 & -3 & 4 \\ 3 & 2 & -1 \\ 0 & 1 & 2 \end{bmatrix}$. [05]
- Q.3** a) In how many ways 72 different books can be arranged in a rack if two particular books cannot remain together? [05]
- b) Elaborate on various types of data with suitable example of each type. [05]
- Q.4** a) A manufacturer sells his article at 20% profit to the wholesaler. The wholesaler sells it to the retailer at 25% profit and retailer sells it to the customer at 40% profit for ₹ 175. Find the cost price to the manufacturer. [05]
- b) An agent is paid a commission 0% on cash sales and 8% on credit sales. If on the sale of ₹ 1,75,000. The agent receives a total commission of 16,880. Find sales made by him in cash and on credit. [05]
- Q.5** A dealer in furniture buys chairs at ₹ 340 each. At what price should he mark them for sale, so that, he may earn a profit of 25% after giving 15% discount? [10]
- Q.6** Write short notes on **ANY TWO** of the following: [10]
- a) Applications of linear equations
 - b) Inferential statistics
 - c) Insurance

SECTION – II

- Q.7** Describe properties of determinants and find the value of the following using properties of determinants: [15]
- $$\begin{vmatrix} 1+a & b & c \\ a & 1+b & c \\ a & b & 1+c \end{vmatrix}$$
- Q.8** For the data given below draw : **i)** Frequency polygon **ii)** Two types of ogive curves **iii)** Histogram. [15]
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|------------------|-------|--------|---------|---------|---------|---------|
| Increment % | 0 – 5 | 5 – 10 | 10 – 15 | 15 – 20 | 20 – 25 | 25 – 30 |
| No. of employees | 4 | 7 | 10 | 15 | 8 | 6 |
- Q.9** a) If ${}^{2n}C_r = {}^{2n}C_{r+2}$ then find the value of r. [05]
- b) Solve the linear system for : $3x - 2y - 2 = 0$, $4x + 3y - 10 = 0$. [05]
- c) Describe concept of ‘Population’ and ‘Sample’ with suitable example. [05]

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